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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,034	12/07/2001	Jozef D. Mitros	TI-32931	8951

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TEXAS INSTRUMENTS INCORPORATED
P O BOX 655474, M/S 3999
DALLAS, TX 75265

EXAMINER	
PHAM, LONG	

ART UNIT	PAPER NUMBER
2814	

DATE MAILED: 12/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/020,034	MITROS ET AL.	
	Examiner	Art Unit	
	Long Pham	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

P riod for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *22 September 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-17 and 28-30* is/are allowed.

6)☒ Claim(s) *18,19,26 and 27* is/are rejected.

7)☒ Claim(s) *20-25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 18, 19, 26, and 27 have been considered but are moot in view of the new ground(s) of rejection.

2. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al (US '082) in view of Nakahara (US '242).

With respect to clams 18, Lin teaches a method of fabricating MOSFET transistors in a semiconductor device, comprising (see figures 1, 2A-2F, and 3A-3E and col. 1, line 10 to col.7, line 5):

providing a semiconductor substrate 220;

adjusting a threshold voltage 226 of a first transistor low voltage device 208 (NMOS) in a first region of said substrate by a first implantation process; and forming a source/drain region 250 of a second transistor high voltage device 210 (PMOS) by a second implantation process.

However, Lin et al. fails to teach adjusting the threshold voltage of the first transistor device and forming the source/drain of the second transistor device in single implantation or simultaneous implantation.

Nakahara teaches a process of forming multiple MOS devices on a substrate in which the threshold voltage region of a MOS device and the source/drain regions of another MOS device are formed simultaneously by implantation. See figures 1A-1E and 2A-2B, 3, and 4 and col. 1, line 5 to col. 6, line 55.

It would have been obvious to ***one of ordinary skill in the art of making semiconductor devices*** to form the threshold voltage region of the first transistor device and the source/drain or LDD region of the second transistor device simultaneously or in a single implantation step in Lin's method

because in doing so high-speed MOS devices can be obtained. See col. 1, lines 54-60.

With respect to claim 19, Lin et al. further teach forming a source/drain region 250 of the first transistor device. See fig. 2F.

1. Claims 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al (US '082) in view of Nakahara (US '242) (a newly cited reference).

Lin teaches a method of forming a source/drain region in a semiconductor device, comprising (see figures 1, 2A-2F, and 3A-3E and col. 1, line 10 to col.7, line 5):

implanting a first low voltage transistor region using boron or phosphorus to adjust a threshold voltage associated with the first transistor device 208 by a first implantation process; and

implanting a portion of a second transistor region using boron or phosphorus to form a source/drain region 250 associated with a second transistor device 212 by a second implantation process.

Lin teaches that the threshold voltage region of the first transistor device and the source/drain of the second transistor device are formed by two separate implantation processes but fails to teach that the threshold voltage region of the first transistor device and the source/drain region of the second transistor device are formed by a single implantation process as recited in present claim 26.

Nakahara teaches a process of forming multiple MOS devices on a substrate in which the threshold voltage region of a MOS device and the source/drain regions of another MOS device are formed simultaneously by implantation. See figures 1A-1E and 2A-2B, 3, and 4 and col. 1, line 5 to col. 6, line 55.

It would have been obvious to ***one of ordinary skill in the art of making semiconductor devices*** to form the threshold voltage region of the first

transistor device and the source/drain or LDD region of the second transistor device simultaneously or in a single implantation step in Lin's method because in doing so high-speed MOS devices can be obtained. See col. 1, lines 54-60.

In response to the applicant's arguments in the bottom paragraph on page 13 of the AMENTMENT filed 09/22/03, it is unclear what problem or solution is being referred. Further, it is submitted that Lin et al. in combination with Nakahara teach the claimed process. Still further, it is submitted that the Nakahara is being relied for only teaching of forming source/drain of one MOS device and adjusting threshold voltage of another MOS device in single implantation.

In response to the applicant's arguments regarding claim 19 on page 14 of the AMENTMENT filed 09/22/03, Lin et al. clearly teach the limitation of claim 19. See the rejection.

The applicant is directed to the above responses for the arguments regarding the claims 26 and 27.

Allowable Subject Matter

2. Claims 1-17 and 28-30 are allowed.

3. Claims 20, 21, 22, 23, 24, and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See

MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long Pham whose telephone number is 703-308-1092. The examiner can normally be reached on M-F, 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 703-308-4918. The fax phone number for the organization where this application or proceeding is assigned is 703-746-4082.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Long Pham
Primary Examiner
Art Unit 2814

LP